

Appendix B



USFWS

Northern red-bellied cooter

Findings of Appropriateness and Compatibility Determinations

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FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Massasoit National Wildlife Refuge

Use: Research Conducted by Non-Service Personnel

This form is not required for wildlife-dependent recreational uses, take regulated by the State, or uses already described in a refuge CCP or stepdown management plan approved after October 9, 1997.

Decision criteria:	YES	NO
(a) Do we have jurisdiction over the use?	✓	
(b) Does the use comply with applicable laws and regulations (Federal, State, Tribal, and local)?	✓	
(c) Is the use consistent with applicable Executive orders and Department and Service policies?	✓	
(d) Is the use consistent with public safety?	✓	
(e) Is the use consistent with goals and objectives in an approved management plan or other document?	✓	
(f) Has an earlier documented analysis not denied the use or is this the first time the use has been proposed?	✓	
(g) Is the use manageable within available budget and staff?	✓	
(h) Will this be manageable in the future within existing resources?	✓	
(i) Does the use contribute to the public’s understanding and appreciation of the refuge’s natural or cultural resources, or is the use beneficial to the refuge’s natural or cultural resources?	✓	
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see section 1.6D, 603 FW 1, for description), compatible, wildlife-dependent recreation into the future?	✓	

Where we do not have jurisdiction over the use (“no” to (a)), there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe (“no” to (b), (c), or (d)) may not be found appropriate. If the answer is “no” to any of the other questions above, we will **generally** not allow the use.

If indicated, the refuge manager has consulted with State fish and wildlife agencies. Yes No

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor’s concurrence.

Based on an overall assessment of these factors, my summary conclusion is that the proposed use is:

Not Appropriate **Appropriate**

Refuge Manager: _____ Date: _____

If found to be **Not Appropriate**, the refuge supervisor does not need to sign concurrence if the use is a new use.

If an existing use is found **Not Appropriate** outside the CCP process, the refuge supervisor must sign concurrence.

If found to be **Appropriate**, the refuge supervisor must sign concurrence:

Refuge Supervisor: _____ Date: _____

A compatibility determination is required before the use may be allowed.

JUSTIFICATION FOR A FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Massasoit National Wildlife Refuge

Use: Research Conducted by Non-Service Personnel

NARRATIVE:

The Service encourages and supports research and management studies on refuge lands that will improve and strengthen natural resource management decisions. The refuge manager encourages and seeks research clearly relating to approved refuge objectives, improves habitat management, and promotes adaptive management at Massasoit National Wildlife Refuge (NWR). We will generally support research projects addressing important management issues or demonstrating species or habitat management techniques important to agencies of the Department of Interior, the National Wildlife Refuge System (Refuge System), and State fish and game agencies. Researchers will submit a final report to the refuge upon completing their work. For long-term studies, we may also require interim progress reports. Researchers are expected to publish in peer-reviewed publications. All reports, presentations, posters, articles, or other publications will acknowledge the refuge system and the Massasoit NWR as partners in the research. All posters will adhere to Service graphics standards. We will insert this requirement to ensure that the research community, partners, and the public understand that the research could not have been conducted without the refuge having been established, or without its operational support and that of the Refuge System.

COMPATIBILITY DETERMINATION

USE

Research Conducted by Non-Service Personnel

REFUGE NAME:

Massasoit National Wildlife Refuge

DATE ESTABLISHED:

1983

ESTABLISHING AND ACQUISITION AUTHORITY(IES):

Endangered Species Act of 1973 (16 USC § 1531-1543, as amended)

REFUGE PURPOSE(S):

“ . . . to conserve (A) fish or wildlife which are listed as endangered or threatened species. . . or (B) plants. . . ”
(16 U.S.C. § 1534).

NATIONAL WILDLIFE REFUGE SYSTEM MISSION:

To administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.

DESCRIPTION OF USE:

(a) What is the use? Is the use a priority public use?

This determination covers low impact research projects; namely, those projects with methods that only have a minimal potential to adversely impact cultural resources and native wildlife and plants.

This is not an all-inclusive list, but examples of the types of research that would be allowed include: northern red-bellied cooter capture and tagging, radio-telemetry tracking, fish sampling, use of cameras and recorders, use of live or other passive traps, non-destructive searches of nests, dens, or burrows, habitat modifications for nesting, research on predator exclosures, landbird nesting and migration ecology, and habitat and vegetation changes.

Research activities allowed under this determination would not result in long-term, negative alterations to species' behavior (e.g. result in wildlife leaving previously occupied areas for long periods; modifying their habitat use; or, causing nest or young abandonment). No project would degrade wildlife habitat, including vegetation, soils, and water. Research associated activities that would not be allowed include, but are not limited to, those that would result in soil compaction or erosion, degrade water quality, destroy habitat, cause public health or safety concerns, or result in conflicts with other compatible refuge uses.

Research conducted by non-U.S Fish and Wildlife Service (Service) personnel is not a priority public use of the National Wildlife Refuge System (Refuge System) under the National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd-668ee), and the Refuge System Improvement Act of 1997 (Public Law 105-57).

(b) Where would the use be conducted?

The location of the research will vary depending on the individual research project being conducted. The entire refuge is potentially available for scientific research. An individual research project is usually limited to a particular habitat type, plant, or wildlife species. On occasion, research projects will encompass an assemblage of habitat types, plants, or wildlife, or may span more than one refuge or include lands outside the refuge. The research location will be limited to those areas of the refuge necessary to conduct the research project. Because of the need to close parts of the refuge spatially or temporally to protect refuge wildlife, some research may not be able to be conducted on certain parts of the refuge during certain times.

(c) When would the use be conducted?

The timing of the research will depend entirely on the individual research project's approved design. Scientific research will be allowed to occur on the refuge throughout the year, unless it conflicts with the protection of northern red-bellied cooters, or with other resources of conservation concern. Individual research projects can be short-term, requiring one or two visits over the course of a few days, or multi-year studies requiring daily visits to the study site. The research project timing will be limited to the minimum (shortest duration) required to meet project objectives. The refuge manager would approve the timing (e.g., project length, seasonality, time of day) of the research prior to the start of the project to minimize impacts to wildlife and habitats, ensure safety, and reduce conflicts with other compatible refuge uses.

(d) How would the use be conducted?

Research methods will also depend on the individual research project. The methods and study design of each research project will be reviewed and scrutinized before the project will be allowed to occur on the refuge. All research project approvals will require individual proposals to demonstrate (1) an approved scientific method, (2) provisions for assuring public health and safety, and (3) no adverse effects on endangered species, migratory birds, or other priority resources of conservation concern. Only low impact research activities, such as those listed under section (a) above, are covered under this determination.

Access to Massasoit NWR is primarily facilitated by vehicle and pedestrian walking access. Both of these means of access are the same as those used by Service staff when conducting biological surveys and management.

Research projects must have a Service-approved study plan and protocol. A detailed research proposal that follows the refuge's study proposal guidelines (see attachment I) is required from parties interested in conducting research on the refuge. Each research proposal request will be considered, and if determined appropriate and compatible, will be issued a special use permit (SUP) by the refuge manager that includes the stipulations in this determination. The refuge manager will use sound professional judgment and ensure that the request will have no considerable negative impacts to natural or cultural resources, or impact visitors, and does not violate refuge regulations. Before initiating a research project that involves federally listed endangered or threatened species, an interagency Section 7 consultation process should be completed.

If approved, multi-year research projects will be reviewed annually to ensure that they are meeting their intended design purposes, that reporting and communicating with refuge staff is occurring, and that projects continue to be consistent with the mission of the Refuge System and purposes for which the Massasoit NWR was established.

If the refuge manager decides to deny, modify, or halt a specific research project, the refuge manager will explain the rationale and conclusions supporting their decision in writing. The denial or modification to an existing study will generally be based on evidence that the details of a particular research project may:

- Negatively impact native fish, wildlife, and habitats or cultural, archaeological, or historical resources.
- Detract from fulfilling the refuge's purposes or conflict with refuge goals and objectives.
- Raise public health or safety concerns.
- Conflict with other compatible refuge uses.

- Not be manageable within the refuge’s available staff or budget time.
- Deviate from the approved study proposal such that impacts to refuge resources are more severe or extensive than originally anticipate.

(e) Why is this use being proposed?

Research by non-Service personnel is conducted by colleges, universities, Federal, state, local agencies, nongovernmental organizations, and qualified members of the public to further the understanding of the natural and physical refuge environments and improve management of refuge natural resources. Much of the information generated by the research is applicable to management on and near the refuge. Thorough research provides critical information for establishing baseline information on refuge resources and evaluating management effects on wildlife and habitat. Research projects may also include evaluating habitat management treatments and the associated wildlife community response, as well as, measures of impacts from public uses on refuge lands.

The Service will encourage and support research and management studies on refuge lands that improve and strengthen natural resource management decisions. The refuge manager will encourage and seek research related to approved refuge objectives, which clearly improves land management and promotes adaptive management. Priority research addresses information that is important to agencies of the Department of the Interior, the Service, Refuge System, State fish and game agencies and other agencies responsible for managing natural resources.

The refuge will also consider research for other purposes that may not be directly related to refuge-specific objectives, but will contribute to the broader enhancement, protection, use, preservation and management of native populations of fish, wildlife, and plants, and their natural diversity within the region or flyway. These proposals must comply with the Service’s governing laws, regulations, and policies.

The refuge will maintain a list of research needs that will be provided to prospective researchers or organizations upon request.

AVAILABILITY OF RESOURCES:

Refuge support of research directly related to refuge goals and objectives may take the form of funding, in-kind services such as use of facilities, vehicles, boats, or equipment, direct staff assistance with the project for data collection, providing historical records, conducting management treatments, or other assistance as appropriate.

The cost for research is incurred in staff time to review research proposals, coordinate with researchers, write and administer special use permits, and in some instances vehicle support and fuel. At an hourly rate of approximately \$45 for a GS-12 step 8, this totals about \$6,000 annually spent on outside research. However, the costs could be much different depending on how many research projects are underway in any given year.

Research program administration	1 staff	120 hours	\$5,400
Fuel and equipment			\$600
Total annual costs:			\$6,000

ANTICIPATED IMPACTS OF THE USE:

The Service encourages approved research to further our understanding of natural resources. Research by other than Service personnel adds to the best available information base supporting management decisions. Researchers may disturb wildlife (such as altering bird behavior as a result of human presence), or cause direct mortality or vegetation trampling while conducting their activities. Researchers may occasionally access the refuge using a four-wheel drive vehicle but most researcher activity will be on foot. Pedestrians have the potential to impact migratory birds when they are present in the same areas (Boyle and Samson 1985). Research has shown that recreation can alter the species composition, nest success, and even brood parasitism of nesting land birds (Miller et al. 1998, Fernández-Juricic 2000; see also Steven et al. 2011). However, we expect potential bird disturbances to be very light given that research is not often conducted on Massasoit

NWR. Researchers may also cause disturbance to nesting northern red-bellied cooters if research activities are occurring in nesting areas from June to September. Nesting sites are small however, and most research activities can be directed away from these areas during the nesting season. We also expect potential vegetation trampling from researchers to be light, and will encourage researchers to use existing access trails and fire breaks whenever possible.

It is possible that direct mortality could result incidental to research activities. Mist-netting for example, can cause stress or (rarely) physical injury, especially when birds are captured, banded and weighed. There may also be occasional mortalities to birds, if predators reach netted birds before researchers do. Similarly, mortality could occur to turtles or fish when fyke nets are used to capture pond fauna. However, all of these injuries and mortalities can be minimized and nearly eliminated when strict protocols for trapping and handling are required and followed, and research personnel are properly trained. Additionally, all research will be conducted according to the stipulations stated in the special use permit. Overall, allowing well-designed and properly reviewed research to be conducted by non-Service personnel is likely to have very little impact on refuge wildlife populations and habitat. If the research project is conducted with professionalism and integrity, potential minor adverse impacts are likely to be outweighed by the knowledge added to our understanding of refuge resources and our management effects on those resources, as well as the opportunity to inform, strengthen, and improve future refuge management decisions. In the event of persistent disturbance to habitat or to wildlife, the activity will be further restricted or discontinued. Because Service or partner staff will supervise this activity, impacts of research will likely be minimal when conducted in accordance with refuge regulations.

We anticipate research will have only negligible to minor impacts to refuge wildlife and habitats because it will only be carried out after the refuge approves a detailed project proposal and issues a Special Use Permit, or enters into a Cooperative Agreement or Research Work Order, including the stipulations in this determination to ensure compatibility. These stipulations are designed to help ensure each project minimizes impacts to refuge cultural resources, wildlife, vegetation, soils, and water.

PUBLIC REVIEW AND COMMENT:

As part of the comprehensive conservation planning (CCP) process for the Massasoit NWR, this compatibility determination will undergo a public comment period concurrent with the release of the draft Massasoit CCP/ Environmental Assessment.

DETERMINATION (CHECK ONE BELOW):

- Use is not compatible
- Use is compatible with the following stipulations

STIPULATIONS NECESSARY TO ENSURE COMPATIBILITY:

- All researchers will be required to submit a detailed research proposal following Service Policy (Service Refuge Manual Chapter 4 Section 6, as may be amended), as well as a completed Refuge System Special Use Research and Monitoring Application and Permit. This can be found at . Applications can be submitted to the refuge manager via email or by fax. The refuge must be given at least 45 days to review and decide whether to approve proposals before initiation of research. If collection of wildlife is involved, the refuge must be given 60 days to review and decide whether to approve the proposal. The Service cannot guarantee that it will review or approve proposals not submitted within these timeframes.
- Only low impact projects are covered under this determination. Low impact projects, as indicated under (a) above, are those that would only have a minimal potential to impact cultural resources and native wildlife and plants. No project should result in long-term negative alterations to species' behavior (e.g. result in wildlife leaving previously occupied areas for a long term; modifying their habitat use within their range; or, causing nest or young abandonment). No project should degrade wildlife habitat, including vegetation, soils, and

water. Nest, dens, and burrows must not be harmed. No research activities should result in soil compaction or erosion, degrade water quality, or destroy habitat.

- Research would only be conducted in Service-approved locations, using approved modes of access, and conducted only after the timing, season, duration, numbers of researchers, and areas open and closed are approved. Sensitive wildlife habitat areas will be avoided unless sufficient protection, approved by the Service, is implemented to limit the area and/or resources potentially impacted by the proposed research.
- Proposals will be prioritized and approved based on need, benefit to refuge resources, and the level of refuge funding or other support required. Service experts, State agencies, or academic experts may be asked to review and comment on proposals.
- SUPs or Cooperative Agreements will be issued for all research conducted by non-Service personnel. The permit will list all the conditions necessary to ensure compatibility and will identify a schedule for periodic progress reports and submittal of a final report or scientific paper.
- Any research project may be terminated at any time for non-compliance with the conditions of the special use permit, or modified, redesigned, relocated, or terminated upon a determination by the refuge manager that the project is causing unanticipated adverse impacts to wildlife, wildlife habitat, approved priority public uses, or refuge resources of staff time, equipment, or funding.
- All work with endangered species will require the proper permits from Federal or State government. Any research involving federally listed species may require Section 7 consultation under the ESA. Any research involving ground disturbance may require historic preservation consultation with the Regional Historic Preservation Officer and/or State Historic Preservation Officer. Researchers may also need State and Federal collection permits and may need to provide an assurance of animal care form or an institutional animal approval form, if applicable.
- Researchers will mark any survey routes, plots, and points in as visually unobtrusive a manner as practical. No permanent markers or infrastructure can be left on the refuge.
- Researchers will use every precaution and not conduct activities that would cause damage to refuge property or present hazards or significant annoyances to other refuge visitors. Any damage should be reported immediately to the refuge manager.
- Researchers must not litter, or start or use open fires on refuge lands.
- All research staff handling wildlife must be properly trained to minimize the potential for impacts to individual wildlife prior to initiating the project. In addition, a review of the U.S. Department of Agriculture's Animal Welfare Information Center Website must be documented by the researcher with identification of practices that will be followed to help further minimize stress, injury, and mortality of wildlife. The Website is reached at: accessed October 2015
- Researchers may not use any chemicals (e.g., herbicides to treat invasive plants) or hazardous materials without prior written consent of refuge manager (e.g., the type of chemical, timing of use, and rate of application). All activities will be consistent with Service policy and an approved refuge Pesticide Use Plan.
- Researchers will be required to take steps to ensure that invasive species and pathogens are not inadvertently introduced or transferred to the refuge and surrounding lands (e.g., cleaning and disinfecting equipment).
- Researchers must have the SUP in their possession when engaged in research activities and will present it to refuge officials and State and Federal law enforcement agents upon request.
- Researchers will submit a final report to the refuge upon completion of their work. For long-term studies, interim progress reports may also be required. The refuge also expects that research findings will be published in peer-reviewed publications. The contribution of the refuge and the Service should be acknowledged in any publications. The SUP (Cooperative Agreement or Research Work Order) will identify a schedule for annual progress reports and the submission of a final report or scientific paper.

JUSTIFICATION:

The Service encourages quality, scientific research because it provides critical baseline information on Federal trust and other refuge resources and helps evaluate the management effects on those resources. Research by non-Service personnel, guided by the stipulations listed above, adds greatly to the information base for refuge managers to make proper refuge management decisions. This use will potentially contribute to the refuge's concurrent purposes in carrying out endangered species and migratory bird management. While some research activities may cause minimal disturbance to wildlife or result in the loss of specific individuals, this impact will be offset by the value of the research to managers and future generations. Impacts, if they occur, would be confined in area, duration, and magnitude, with no long-term consequences predicted. Research conducted by non-Service personnel will not materially interfere with or detract from the mission of the Refuge System or the purposes for which the refuge was established.

SIGNATURE:

Refuge Manager: _____
(Signature) (Date)

CONCURRENCE:

Regional Chief: _____
(Signature) (Date)

MANDATORY 10 YEAR RE-EVALUATION DATE:

LITERATURE CITED:

Boyle, S.A. and F.B. Samson. 1985. Effects of non-consumptive recreation on wildlife: A review. *Wildlife Society Bulletin* 13: 110-116.

Fernández-Juricic, E. 2000. Local and regional effects of pedestrians on forest birds in a fragmented landscape. *Condor* 102(2):247-255.

Miller, S.G., R.L. Knight, and C.K. Miller. 1998. Influence of recreational trails on breeding bird communities. *Ecological Applications* 8:162-169.

Steven, R., C. Pickering, and J.G. Castley. 2011. A review of the impacts of nature based recreation on birds. *Journal of Environmental Management* 92: 2287-2294.

Attachment 1. Massasoit National Wildlife Refuge Study Proposal Guidelines

A study proposal is a justification and description of the work to be done, and includes cost and time requirements. Proposals must be specific enough to serve as “blueprints” for the investigative efforts. Step-by-step plans for the actual investigations must be spelled out in advance, with the level of detail commensurate with the cost and scope of the project and the needs of management. Please submit proposals electronically as a Microsoft Word document or hardcopy to the refuge manager.

The following list provides a general outline of first order headings/sections for study proposals.

- Cover Page.
- Table of Contents (for longer proposals).
- Abstract.
- Statement of Issue.
- Literature Summary.
- Objectives/Hypotheses.
- Study Area.
- Methods and Procedures.
- Quality Assurance/Quality Control (QA/QC).
- Specimen Collections.
- Deliverables.
- Special Requirements, Concerns, Necessary Permits.
- Literature Cited.
- Peer Review.
- Budget.
- Personnel and Qualifications.

Cover Page

The cover page must contain the following information:

- Title of Proposal.
- Current Date.
- Investigator(s): name, title, organizational affiliation, address, telephone and fax numbers and e-mail address of all investigators or cooperators.
- Proposed starting date.
- Estimated completion date.
- Total Funding Support Requested from the U.S. Fish and Wildlife Service (Service).
- Signatures of Principal Investigator(s) and other appropriate institutional officials.

Abstract

The abstract should contain a short summary description of the proposed study, including reference to major points in the Statement of Issue, Objectives, and Methods and Procedures sections.

Statement of Issue

Provide a clear, precise summary of the problem to be addressed and the need for its solution. This section should include statements of the importance, justification, relevance, timeliness, generality, and contribution of the study. Describe how any products will be used, including any anticipated commercial use. What is the estimated probability of success of accomplishing the objective(s) within the proposed timeframe?

Literature Summary

This section should include a thorough but concise literature review of current and past research that pertains to the proposed research, especially any pertinent research conducted within southeastern Massachusetts or New England, and specifically, on refuge units. A discussion of relevant legislation, policies, and refuge planning and management history, goals, and objectives should also be included.

Objectives/Hypotheses

A very specific indication of the proposed outcomes of the project should be stated as objectives or hypotheses to be tested. Project objectives should be measurable. Provide a brief summary of what information will be provided at the end of the study and how it will be used in relation to the problem. These statements should flow logically from the statement of issue and directly address the management problem.

Establish data quality objectives in terms of precision, accuracy, representativeness, completeness, and comparability as a means of describing how good the data need to be to meet the project's objectives.

Study Area

Provide a detailed description of the geographic area(s) to be studied and include a clear map delineating the proposed study area(s) and showing specific locations where work will occur.

Methods and Procedures

This section should describe as precisely as possible how the objectives will be met or how the hypotheses will be tested. Include detailed descriptions and justifications of the field and laboratory methodology, protocols, and instrumentation. Explain how each variable to be measured directly addresses the research objective/hypothesis. Describe the experimental design, population, sample size, and sampling approach (including procedures for sub-sampling). Summarize the statistical and other data analysis procedures to be used. List the response variables and tentative independent variables or covariates. Describe the experimental unit(s) for statistical analysis. Also include a detailed project time schedule that includes initiation, fieldwork, analysis, reporting, and completion dates.

Quality Assurance/Quality Control

Adequate QA/QC procedures help ensure that data and results are: credible and not an artifact of sampling or recording errors; of known quality; able to stand up to external scientific scrutiny; and accompanied by detailed method documentation. Describe the procedures to be used to insure that data meet defined standards of quality and program requirements, errors are controlled in the field, laboratory, and office, and data are properly handled, documented, and archived. Describe the various steps (e.g., personnel training, calibration of equipment, data verification and validation) that will be used to identify and eliminate errors introduced during data collection (including observer bias), handling, and computer entry. Identify the percentage of data that will be checked at each step.

Specimen Collections

Clearly describe the kind (species), numbers, sizes, and locations of animals, plants, rocks, minerals, or other natural objects to be sampled, captured, or collected. Identify the reasons for collecting, the intended use of all the specimens to be collected, and the proposed disposition of collected specimens. For those specimens to be permanently retained as voucher specimens, identify the parties responsible for cataloging, preservation, and storage and the proposed repository.

Deliverables

The proposal must indicate the number and specific format of hard and/or electronic media copies to be submitted for each deliverable. The number and format will reflect the needs of the refuge and the Refuge manager. Indicate how many months after the project is initiated (or the actual anticipated date) that each deliverable will be submitted. Deliverables are to be submitted or presented to the refuge manager.

Deliverables that are required are as follows:

Reports and Publications

Describe what reports will be prepared and the timing of reports. Types of reports required in fulfillment of natural and social science study contracts or agreements include:

- (1) Progress report(s) (usually quarterly, semiannually, or annually): may be required
- (2) Draft final and final report(s): always required

A final report must be submitted in addition to a thesis or dissertation (if applicable) and all other identified deliverables. Final and draft final reports should follow refuge guidelines (Attachment 1a).

In addition, investigators are encouraged to publish the findings of their investigations in refereed professional, scientific publications and present findings at conferences and symposia. The Refuge manager appreciates opportunities to review manuscripts in advance of publication.

Data Files

Provide descriptions of any spatial (Geographic Information Systems; GIS) and non-spatial data files that will be generated and submitted as part of the research. Non-spatial data must be entered onto Windows CD-ROMs in Access or Excel. Spatial data, which includes GPS (Global Position System)-generated files, must be in a format compatible with the refuge's GIS system (ArcGIS 10). All GIS data must be in UTM Zone 19, NAD 83.

Metadata

For all non-spatial and spatial data sets or information products, documentation of information (metadata) describing the extent of data coverage and scale, the history of where, when, and why the data were collected, who collected the data, the methods used to collect, process, or modify/ transform the data, and a complete data dictionary must also be provided as final deliverables. Spatial metadata must conform to Service (Federal Geographic Data Committee; FDGC) metadata standards.

Oral Presentations

Three types of oral briefings should be included: pre-study, annual, and closeout.

These briefings will be presented to refuge staff and other appropriate individuals and cooperators. In addition, investigators should conduct periodic informal briefings with refuge staff throughout the study whenever an opportunity arises. During each refuge visit, researchers should provide verbal updates on project progress. Frequent dialogue between researchers and refuge staff is an essential element of a successful research project.

Specimens and Associated Project Documentation

A report on collection activities, specimen disposition, and the data derived from collections, must be submitted to the refuge following refuge guidelines.

Other:

Researchers must provide the refuge manager with all of the following:

- (1) Copies (numbered) of field notes/ notebooks/ datasheets.
- (2) Copies of raw data (in digital format), including GIS data, as well as analyzed data.
- (3) Copies of all photos, slides (digital photos preferred), videos, and films.
- (4) Copies of any reports, theses, dissertations, publications or other material (such as news articles) resulting from studies conducted on refuge.
- (5) Detailed protocols used in study.
- (6) Aerial photographs.

- (7) Maps.
- (8) Interpretive brochures and exhibits.
- (9) Training sessions (where appropriate).
- (10) Survey forms.
- (11) Value-added software, software developed, and models.

Additional deliverables may be required of specific studies.

Special Requirements, Permits, and Concerns

Provide information on the following topics where applicable. Attach copies of any supporting documentation that will facilitate processing of your application.

Refuge Assistance

Describe any refuge assistance needed to complete the proposed study, such as use of equipment or facilities or assistance from refuge staff. It is important that all equipment, facilities, services, and logistical assistance expected to be provided by the Service be specifically identified in this section so all parties are in clear agreement before the study begins.

Ground Disturbance

Describe the type, location, area, depth, number, and distribution of expected ground-disturbing activities, such as soil pits, cores, or stakes. Describe plans for site restoration of affected areas.

Proposals that entail ground disturbance may require an archeological survey and special clearance prior to approval of the study. You can help reduce the extra time that may be required to process such a proposal by including identification of each ground disturbance area on a U.S. Geological Survey (USGS) 7.5-minute topographic map.

Site Marking and/or Animal Marking

Identify the type, amount, color, size, and placement of any flagging, tags, or other markers needed for site or individual resource (e.g., trees) identification and location. Identify the length of time it is needed and who will be responsible for removing it. Identify the type, color, placement of any tags placed on animals (see SUP or requirements on marking and handling of animals).

Access to Study Sites

Describe the proposed method and frequency of travel to and within the study site(s). Explain any need to enter restricted areas. Describe duration, location, and number of participants, and approximate dates of site visits.

Use of Mechanized and Other Equipment

Describe any vehicles, boats, field equipment, markers, or supply caches by type, number, and location. You should explain the need to use these materials and if or how long they are to be left in the field.

Safety

Describe any known potentially hazardous activities, such as electro-fishing, scuba diving, aircraft use, wildlife capture or handling, wildlife or immobilization.

Chemical Use

Identify chemicals and hazardous materials that you propose using within the refuge.

Indicate the purpose, method of application, and amount to be used. Describe plans for storage, transfer, and disposal of these materials and describe steps to remediate accidental releases into the environment. Attach copies of Material Safety Data Sheets.

Animal Welfare

If the study involves vertebrate animals, describe your protocol for any capture, holding, marking, tagging, tissue sampling, or other handling of these animals (including the training and qualifications of personnel relevant to animal handling and care). If your institutional animal welfare committee has reviewed your proposal, please include a photocopy of their recommendations. Describe alternatives considered, and outline procedures to be used to alleviate pain or distress. Include contingency plans to be implemented in the event of accidental injury to or death of the animal. Include state and Federal permits. Where appropriate, coordinate with and inform state natural resource agencies.

Literature Cited

List all reports and publications cited in the proposal.

Peer Review

Provide the names, titles, addresses, and telephone numbers of individuals with subject-area expertise who have reviewed the research proposal. If the reviewers are associated with the investigator's research institution or if the proposal was not reviewed, please provide the names, titles, addresses, and telephone numbers of three to five potential subject-area reviewers who are not associated with the investigator's institution. These individuals will be asked to provide reviews of the proposal, progress reports, and the draft final report.

Budget

The budget must reflect both funding and assistance that will be requested from the Fish and Wildlife Service and the cooperator's contributions on an identified periodic (usually annual) basis.

Personnel Costs

Identify salary charges for principal investigator(s), research assistant(s), technician(s), clerical support, and others. Indicate period of involvement (hours or months) and pay rate charged for services. Be sure to include adequate time for data analysis and report writing and editing.

Fringe Benefits

Itemize fringe benefit rates and costs.

Travel

Provide separate estimates for fieldwork and meetings. Indicate number of trips, destinations, estimated miles of travel, mileage rate, air fares, days on travel, and daily lodging and meals charges. Vehicle mileage rate cannot exceed standard government mileage rates. Charges for lodging and meals are not to exceed the maximum daily rates set for the locality by the Federal Government.

Equipment

Itemize all equipment to be purchased or rented and provide a brief justification for each item costing more than \$1,000 that would be paid for using Federal funds. Be sure to include any computer-related costs. For proposals funded under Service agreement or contract, the refuge reserves the right to transfer the title of purchased equipment with unit cost of \$1,000 or more to the Federal Government following completion of the study. These items should be included as deliverables.

Supplies and Materials

Purchases and rentals under \$1,000 should be itemized as much as is reasonable.

Subcontract or Consultant Charges

All such work must be supported by a subcontractor's proposal also in accordance with these guidelines.

Specimen Collections

Identify funding requirements for the cataloging, preservation, storage, and analyses of any collected specimens that will be permanently retained.

Printing and Copying

Include costs for preparing and printing the required number of copies of progress reports, the draft final report, and the final report. In general, a minimum of two (2) copies of progress reports (usually due quarterly, semiannually, or as specified in agreement), the draft final report, and the final report are required.

Indirect Charges

Identify the indirect cost (overhead) rate and charges and the budget items to which the rate is applicable.

Cooperator's Contributions

Show any contributing share of direct or indirect costs, facilities, and equipment by the cooperating research institution.

Outside Funding

List any outside funding sources and amounts.

Personnel and Qualifications

List the personnel who will work on the project and indicate their qualifications, experience, and pertinent publications. Identify the responsibilities of each individual and the amount of time each will devote. A full vitae or resume for each principal investigator and any consultants should be included here.

Attachment 1a. Final Report Guidelines

Draft final and final reports should follow Journal of Wildlife Management format and should include the following sections:

- Title Page
- Abstract
- Introduction/Problem statement
- Study Area
- Methods (including statistical analyses)
- Results
- Discussion
- Management Implications
- Management Recommendations
- Literature Cited

COMPATIBILITY DETERMINATION

USE:

Wildlife Observation and Photography, Environmental Education and Interpretation

REFUGE NAME:

Massasoit National Wildlife Refuge

DATE ESTABLISHED:

1983

ESTABLISHING AND ACQUISITION AUTHORITY(IES):

Endangered Species Act of 1973 (16 U.S.C. § 1531-1543, as amended)

REFUGE PURPOSE(S):

“ . . . to conserve (A) fish or wildlife which are listed as endangered species or threatened species... or (B) plants...” (16 U.S.C. § 1534).

NATIONAL WILDLIFE REFUGE SYSTEM MISSION:

To administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.

DESCRIPTION OF USE:

(a) What is the use? Is the use a priority public use?

The uses are wildlife observation, wildlife photography, environmental education and interpretation. These are priority public uses of the National Wildlife Refuge System (Refuge System) under the National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd-668ee), and the National Wildlife Refuge System Improvement Act (Improvement Act) of 1997 (Public Law 105-57).

(b) Where would the use be conducted?

These uses would occur on the Crooked Pond parcel of the refuge. Environmental education and interpretation programs could also occur offsite in classrooms, teacher workshops, and lectures.

(c) When would the use be conducted?

These activities could occur year-round during daylight hours (sunrise to sunset). Environmental education would likely occur primarily during the school season from September through June.

(d) How would the use be conducted?

Visitation to the refuge by the public will only occur as part of a scheduled refuge staff or partner-led activity. All partners would be issued a special use permit (SUP) by refuge staff. The SUP would identify the types of activities that can be held as well as restrictions to prevent and minimize disturbance to wildlife, particularly northern red-bellied cooters. Some parts of the refuge, particularly the shoreline of Crooked Pond, could remain closed to the public to protect the cooter and its habitat. Although wildlife observation and photography is usually self-guided on refuges, the presence of the northern red-bellied cooter and the lack of road frontage and parking on the refuge limits our ability to offer unrestricted access.

Refuge staff will work with local teachers, volunteers and conservation partners to conduct environmental education and interpretation on and off the refuge. Onsite refuge activities will primarily include teacher or staff-guided field trips exploring topics requested by teachers, “Teach-the Teacher” workshops, or more structured curriculum-based programs specifically designed for use on the refuge. Offsite activities would primarily include offering refuge staff assistance to local partners who are interested in working with the refuge staff to expand their efforts into local classrooms and the occasional refuge attendance at special events such as a career day.

Interpretation consists of guided natural or cultural history programs, interpretative signs, lectures, development and publication of brochures, management of a refuge Website, and use of social media such as Facebook and Twitter. Any of these may be used to provide information to the public and to provide a quality refuge experience.

(e) Why is this use being proposed?

The Improvement Act states that priority, wildlife-dependent public uses should receive enhanced consideration in planning and be facilitated on refuges to the extent they are compatible.

Wildlife observation and photography and environmental education and interpretation promote refuge purposes and management objectives through activities that increase public knowledge and understanding of wildlife and the importance of habitat protection and management. Refuge visitors that participate in these uses will gain an understanding of the missions of the Service and the Refuge System, and the contribution of the Massasoit NWR to this system.

AVAILABILITY OF RESOURCES:

These uses will occur with the availability of existing staff to lead or develop partnerships. Massasoit NWR has been closed to the public, so it is unknown what the actual demand for these uses will be.

New Costs:

Develop a traveling “northern red-bellied cooter” trunk exhibit	\$1,000
Total new costs:	\$1,000

Recurring annual costs:

Equipment and supplies			\$1,000
GS-11 Visitor Services Manager	1 staff	40 hours	\$1,800
GS-9 Park Ranger	1 staff	40 hours	\$1,500
Total annual recurring costs:			\$4,300

ANTICIPATED IMPACTS OF THE USE:

The majority of the impact from wildlife observation and photography will be disturbance caused to resting, feeding or nesting migratory birds and turtles, although this will be minimized due to the structured nature of the activities that will be allowed by SUP or conducted by refuge staff. There will be some trampling of vegetation and soil compaction.

Visitors engaged in wildlife observation and photography and/or environmental education and interpretation have a vested interest in minimizing disturbance to the wildlife they wish to observe, photograph, and learn about. However, people are known to disturb wildlife in an attempt to get closer looks at the objects of their attention. Pedestrians have the potential of impacting songbird and other migratory bird populations feeding and resting in the forested area. Pedestrians can also impact turtles if they happen to be in the same area and do not maintain appropriate distances from the turtles. Conflicts arise when migratory birds and humans are present in the same areas (Boyle and Samson 1985). Response of wildlife to human activities includes: departure from site (Owen 1973, Burger 1981, Kaiser and Fritzell 1984, Korschgen et al.1985, Henson and Grant 1991, Kahl 1991, Klein 1993), use of sub-optimal habitat (Erwin 1980, Williams and Forbes 1980), altered behavior (Burger 1981, Korschgen et al. 1985, Morton et al. 1989, Ward and Stehn 1989, Havera et al. 1992, Klein 1993), and increase in energy expenditure (Morton et al. 1989, Bélanger and Bédard 1990).

PUBLIC REVIEW AND COMMENT:

As part of the CCP process for the Massasoit NWR, this compatibility determination will undergo a public comment period concurrent with the release of the draft Massasoit CCP/Environmental Assessment.

DETERMINATION (CHECK ONE BELOW):

- Use is not compatible
- Use is compatible with the following stipulations

STIPULATIONS NECESSARY TO ENSURE COMPATIBILITY:

- All wildlife observation and photography, environmental education and interpretation activities will be guided by refuge staff or led by partners who have been issued an SUP by refuge staff. Permittees must follow the conditions outlined in the SUP.
- Activities will avoid sensitive areas prone to disturbance (e.g., sensitive vegetation areas) or degradation (e.g., soil compaction), and will be designed to minimize impacts to turtles, nesting birds, or other breeding, feeding, or resting wildlife.
- Access for wildlife observation and photography, environmental education and interpretation activities will be on foot. No motorized vehicles, bicycles, dogs, or horses will be allowed on the refuge.
- Activities will be held in designated sites where only minimal direct and short term impacts are predicted, and adverse long term, cumulative impacts are not anticipated. Periodic evaluations will be done to insure that visitors are not causing unacceptable adverse impacts. If evidence of unacceptable impacts occurs, access would be modified or curtailed as deemed necessary by the refuge manager.
- The refuge is a leave-no-trace, carry in-carry out facility. All food containers, bottles, and other waste and refuse must be taken out. Littering, dumping, and abandoning property are prohibited by Federal regulation at 50 C.F.R. 27.93.94.

JUSTIFICATION:

Wildlife observation and photography and environmental education and interpretation are priority, wildlife-dependent public uses identified by the Improvement Act. By definition, these activities are determined appropriate by law and, when compatible, are to be facilitated on refuges. These programs support the mission of the Refuge System by promoting an understanding and appreciation of natural and cultural resources and their management within a national system of refuges. Our programs will reach out to all segments of the public to expand support for the refuge system. Individual refuge programs will be consistent with, and fully support, the goals and objectives in the Massasoit NWR CCP.

We do not expect for the offering and conduct of guided wildlife observation or photography, environmental education or interpretation to materially interfere with or detract from the mission of the Refuge System, nor diminish the purpose for which the refuge was established. It will not pose significant adverse effects on refuge resources, nor interfere with public use of the refuge, nor cause an undue administrative burden.

SIGNATURE:

Refuge Manager: _____
(Signature) (Date)

CONCURRENCE:

Regional Chief: _____
(Signature) (Date)

MANDATORY 15 YEAR RE-EVALUATION DATE:

LITERATURE CITED:

Bélanger, L., and J. Bédard. 1990. Energetic cost of man-induced disturbance to staging snow geese. *Journal of Wildlife Management*. 54:36.

Boyle, S.A., and F. B. Samson. 1985. Effects of non-consumptive recreation on wildlife: A review. *Wildlife Society Bulletin*. 13:110.

Burger, J. 1981. The effect of human activity on birds at a coastal bay. *Biological Conservation*. 21:231-241.

Erwin, R.M. 1980. Breeding habitat by colonially nesting water birds in 2 Mid-Atlantic U.S. regions under different regimes of human disturbance. *Biological Conservation*. 18:39-51.

Havera, S.P., L.R. Boens, M.M. Georgi, and R.T. Shealy. 1992. Human disturbance of waterfowl on Keokuk Pool, Mississippi River. *Wildlife Society Bulletin*. 20:290-298.

Henson, P.T., and A. Grant. 1991. The effects of human disturbance on trumpeter swan breeding behavior. *Wildlife Society Bulletin* 19:248-257.

Kaiser, M.S. and E.K. Fritzell. 1984. Effects of river recreationists on green-backed heron behavior. *Journal of Wildlife Management*. 48:561-567.

Kahl, R. 1991. Boating disturbance of canvasbacks during migration at Lake Poygan, Wisconsin. *Wildlife Society Bulletin*. 19:242-248.

Klein, M.L. 1993. Waterbird behavioral responses to human disturbance. *Wildlife Society Bulletin*. 21:31-39.

Korschgen, C.E., L.S. George, and W.L. Green. 1985. Disturbance of diving ducks by boaters on a Migrational staging area. *Wildlife Society Bulletin*. 13:290-296.

- Morton, J.M., A.C. Fowler, and R.L. Kirkpatrick. 1989. Time and energy budgets of American black ducks in winter. *Journal of Wildlife Management*. 53:401-410 (also see corrigendum in *Journal of Wildlife Management*. 54:683).
- Owen, M. 1973. The management of grassland areas for wintering geese. *Wildfowl*. 24:123-130.
- Ward, D.H., and R.A. Stehn. 1989. Response of brant and other geese to aircraft disturbance at Izembek Lagoon, Alaska. U.S. Fish and Wildlife Service, Alaska Fish and Wildlife Research Center. Final report to the Minerals Management Service. Anchorage, Alaska. 193 pp.
- Williams, G.J., and E. Forbes. 1980. The habitat and dietary preferences of dark-bellied Brant geese and widgeon in relation to agricultural management. *Wildfowl*. 31:151-157.

COMPATIBILITY DETERMINATION

USE:

Fishing

REFUGE NAME:

Massasoit National Wildlife Refuge

DATE ESTABLISHED:

1983

ESTABLISHING AND ACQUISITION AUTHORITY(IES):

Endangered Species Act of 1973 (16 U.S.C. § 1531-1543, as amended)

REFUGE PURPOSE(S):

“ . . . to conserve (A) fish or wildlife which are listed as endangered or threatened species. . . or (B) plants. . . ”
(16 U.S.C. § 1534).

NATIONAL WILDLIFE REFUGE SYSTEM MISSION:

To administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.

DESCRIPTION OF USE:

(a) What is the use? Is the use a priority public use?

Fishing is a priority public use of the National Wildlife Refuge System (Refuge System) under the National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd-668ee), and the National Wildlife Refuge System Improvement Act (Improvement Act) of 1997 (Public Law 105-57).

(b) Where would the use be conducted?

All of Crooked Pond is located within the Massasoit NWR. Sections of Hoyt Pond, Gunners Exchange Pond, and Island Pond shorelines are also in the refuge. All of Massasoit NWR, including these four refuge pond shorelines, has been closed to public access to protect the northern red-bellied cooter and aid in its recovery. Fishing, if allowed, would occur at ponds' edges or from boats in the water.

(c) When would the use be conducted?

The freshwater fishing season in Massachusetts runs throughout the calendar year. However, the majority of fish species present in these refuge ponds are “warm-water” species, such as largemouth bass, black crappie, and chain pickerel (see Massasoit NWR draft comprehensive conservation plan (CCP)/ environmental assessment (EA), appendix A, table A-1), with peak fishing seasons occurring from late spring through summer.

(d) How would the use be conducted?

Anglers would use conventional hook and line gear.

(e) Why is this use being proposed?

The 1997 Refuge Improvement Act states that priority, wildlife-dependent public uses should receive enhanced consideration in planning and be facilitated on refuges to the extent they are compatible. Fishing is determined to be an appropriate use of refuges; this document determines whether fishing at Massasoit NWR is a compatible use.

AVAILABILITY OF RESOURCES:

No staff are dedicated to Massasoit NWR. Refuge staff are shared amongst the eight refuges in the Eastern Massachusetts Refuge Complex. Opening refuge shorelines to fishing would require increased law enforcement, biological monitoring, outreach, and maintenance at levels much higher than currently occurs. This effort would be necessary to prevent disturbance to the northern red-bellied cooter and its habitat. A fishing plan and environmental assessment (EA) would need to be written, and a public review period would need to be conducted. Federal fishing regulations would need to be amended. New regulatory and interpretive signs will need to be purchased, installed, and maintained. Coordination with adjoining landowners to approve access would be required in some cases. Parking would need to be constructed and trails developed to provide access to refuge shorelines. Permitting, planning, cultural resource surveys, and construction would require additional resources.

New Planning and Construction Estimated Costs:

Develop fishing plan, assessment, new regulations and public process	\$10,000
Construct and install regulatory/interpretive panels	\$2,000
<u>Planning and construction of up to three parking areas and trails to ponds</u>	<u>\$200,000</u>
Total new costs:	\$212,000

Recurring, annual costs:

GS-11 Law Enforcement	1 staff	40 hours	\$2,000
GS-12 Visitor Services	1 staff	30 hours	\$1,500
GS-5 Biological Technician	1 staff	40 hours	\$1,200
Occasional maintenance of trails	1 staff	25 hours	\$1,000
<u>Equipment, vehicles, and supplies (including brochures/trail guides)</u>			<u>\$1,000</u>
Total annual recurring costs:			\$6,700

ANTICIPATED IMPACTS OF THE USE:

Fishing would occur from the shoreline or on the waters of Crooked Pond or on the refuge-owned sections of Hoyt Pond, Gunners Exchange Pond, and Island Pond shorelines. Northern red-bellied cooters, a federally listed species, rely on all of these ponds for foraging, basking, and nesting. Northern red-bellied cooters are generally active from March to October, with peak nesting occurring in late spring and summer (U.S. Fish and Wildlife Service 1994). Typically hatchlings emerge during late August through October; although rarely, they may overwinter in the nests (<http://www.mass.gov/eea/docs/dfg/nhosp/species-and-conservation/nhfacts/pseudemys-rubriventris.pdf>; accessed December 2016). Therefore, we considered impacts to the northern red-bellied cooter and the habitat at all of these sites throughout the year.

Fishing occurs on non-refuge owned portions of Hoyt Pond, Gunners Exchange Pond, and Island Pond. Some refuge-owned shorelines are suitable for fishing, but there is no easy access to these shorelines that would avoid disturbance to adjacent private landowners or construction of parking areas and trails to the shoreline. In particular, the refuge-owned shoreline on Hoyt Pond is not conducive to fishing due to its slope. The refuge-

owned shorelines of Crooked Pond and Gunners Exchange Pond do provide northern red-bellied cooter nesting habitat, and our Island Pond shoreline has nesting potential with suitable management. Due to the overlap in peak fishing times and northern red-bellied cooter nesting activity, we would expect direct disturbance to nesting northern red-bellied cooters at the Gunners Exchange Pond shoreline site if fishing were allowed on refuge property. It can take a female cooter several hours from the time she emerges from the water, to find a nesting spot, dig the nest chamber, lay her eggs, and cover the nest (U.S. Fish and Wildlife Service unpublished reports 2014 and 2015). Any human presence during the day, even for a short amount of time, could disrupt this behavior. With increased human access, we would also expect an increase in trampled vegetation and possibly shoreline erosion, littering, and vandalism (Knight and Cole, 1995).

We would expect the biggest impacts of fishing to be observed at Crooked Pond, where at least 8 females nested in 2015 (U.S. Fish and Wildlife Service unpublished data). Crooked Pond is only 10 acres, and because nearly the entire pond is visible from much of the shoreline, human presence anywhere on the shoreline can impact basking turtles throughout the pond (S. Koch, personal communication 2016). Additionally, anglers would most likely be drawn to the sandy point and beach areas (totaling less than ½ acre), the only openings on the shoreline clear enough for casting fishing lines, and also the only suitable nesting areas for northern red-bellied cooters on Crooked Pond. Therefore, in addition to impacts to the shoreline habitat described above, any human presence during the spring, summer, and fall is also likely to cause a disruption to northern red-bellied cooters normal nesting, basking, and foraging behaviors. The turtles are doing as well as they are specifically due to the lack of human use of the shoreline. Additionally, an increase in human related trash, bait, or fish scents left on the shoreline by anglers (whether intentional or accidental) will attract more predators (such as coyote, skunks, and raccoons) which are already suppressing northern red-bellied cooter nest success at this site.

Opening refuge-controlled pond shorelines to fishing would increase the amount of law enforcement, outreach, maintenance, and biological monitoring needed to minimize disturbance to the northern red-bellied cooter and to monitor and remediate sensitive pond shoreline habitats. It is anticipated that litter (fishing line and gear, bait, and food and drink litter) would be left by anglers, and shoreline, erosion and vegetation damage would occur. This would result in a significant increase in the amount of time refuge staff spends at the refuge or working on this use, which would detract from other resource, habitat or visitor services management at the other refuges in the Refuge Complex.

PUBLIC REVIEW AND COMMENT:

As part of the comprehensive conservation planning (CCP) process for the Massasoit NWR, this compatibility determination will undergo a public comment period concurrent with the release of the draft Massasoit CCP/ Environmental Assessment.

DETERMINATION (CHECK ONE BELOW):

Use is not compatible

Use is compatible with the following stipulations

JUSTIFICATION:

Although fishing is identified as a priority public use of the Refuge System and is therefore an appropriate use, fishing on the four refuge ponds is not compatible with the purpose for which Massasoit NWR was established, which is to protect threatened and endangered species. The shorelines of Island, Crooked, and

Gunners Exchange Ponds provide habitat for the federally listed northern red-bellied cooter. The fourth pond, Hoyt Pond, is not conducive to fishing due to its slope. The refuge lies within designated critical habitat for the northern red-bellied cooter. Due to the overlap in peak fishing times and northern red-bellied cooter nesting activity, we would expect direct disturbance to nesting red-bellied cooters if fishing were allowed. Along shorelines where northern red-bellied cooters bask, increased human presence would also cause additional direct disturbance to northern red-bellied cooters and likely would result in an increased predator presence due to bait and other food sources left on site. Allowing access to Crooked Pond would especially detract from the refuge's purpose because of 1) the high density of northern red-bellied cooters in the pond, 2) the pond's small size and near 100 percent visibility from most of the shoreline, 3) the overlap in timing of peak fishing and peak northern red-bellied cooter activity, and 4) the overlap in physical nesting habitat and human-accessible shoreline. Furthermore, this activity would require redirecting refuge law enforcement and biological staff, who are already overextended across the 8-refuge complex conducting mission critical work.

In summary, after consideration of the potential impacts on northern red-bellied cooters and their current and potential habitat, and that the refuge lies within their designated critical habitat and that the refuge lacks administrative means to ensure proper management of this use, we have determined that fishing is not compatible on Massasoit NWR because it would materially interfere with and detract from the refuge's purpose to conserve and protect threatened and endangered species.

SIGNATURE:

Refuge Manager: _____
(Signature) (Date)

CONCURRENCE:

Regional Chief: _____
(Signature) (Date)

MANDATORY 15 YEAR RE-EVALUATION DATE:

LITERATURE CITED:

Knight, R. L., and D. N. Cole. 1995. Wildlife responses to recreationists. Pages 51-69 in R.L. Knight and D.N. Cole, editors. *Wildlife and recreationists: coexistence through management and research*. Washington, D.C., Island Press.

U.S. Fish and Wildlife Service. 1994. *Plymouth Redbelly Turtle Recovery Plan*. Second Edition. New England Field Office. Concord, NH. 42 pp.

_____. unpublished reports. 2014 and 2015. Eastern Massachusetts National Wildlife Refuge files.

FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Massasoit National Wildlife Refuge

Use: Bicycling

This form is not required for wildlife-dependent recreational uses, take regulated by the State, or uses already described in a refuge CCP or stepdown management plan approved after October 9, 1997.

Decision criteria:	YES	NO
(a) Do we have jurisdiction over the use?	✓	
(b) Does the use comply with applicable laws and regulations (Federal, State, Tribal, and local)?	✓	
(c) Is the use consistent with applicable Executive orders and Department and Service policies?	✓	
(d) Is the use consistent with public safety?	✓	
(e) Is the use consistent with goals and objectives in an approved management plan or other document?		✓
(f) Has an earlier documented analysis not denied the use or is this the first time the use has been proposed?	✓	
(g) Is the use manageable within available budget and staff?		✓
(h) Will this be manageable in the future within existing resources?		✓
(i) Does the use contribute to the public’s understanding and appreciation of the refuge’s natural or cultural resources, or is the use beneficial to the refuge’s natural or cultural resources?		✓
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see section 1.6D, 603 FW 1, for description), compatible, wildlife-dependent recreation into the future?		✓

Where we do not have jurisdiction over the use (“no” to (a)), there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe (“no” to (b), (c), or (d)) may not be found appropriate. If the answer is “no” to any of the other questions above, we will **generally** not allow the use.

If indicated, the refuge manager has consulted with State fish and wildlife agencies. Yes No

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor’s concurrence.

Based on an overall assessment of these factors, my summary conclusion is that the proposed use is:

Not Appropriate **Appropriate**

Refuge Manager: _____ Date: _____

If found to be **Not Appropriate**, the refuge supervisor does not need to sign concurrence if the use is a new use.

If an existing use is found **Not Appropriate** outside the CCP process, the refuge supervisor must sign concurrence.

If found to be **Appropriate**, the refuge supervisor must sign concurrence:

Refuge Supervisor: _____ Date: _____

A compatibility determination is required before the use may be allowed.

JUSTIFICATION FOR A FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Massasoit National Wildlife Refuge

Use: Bicycling

NARRATIVE:

The U.S. Fish and Wildlife Service (Service) policy on Appropriate Refuge Uses (603 FW 1) states that: “General public uses that are not wildlife-dependent recreational uses (as defined by the National Wildlife Refuge System (Refuge System) Improvement Act (Improvement Act) of 1997) and do not contribute to the fulfillment of refuge purposes or goals or objectives as described in current refuge management plans are the lowest priorities for refuge managers to consider. These uses are likely to divert refuge management resources from priority general public uses or away from our responsibilities to protect and manage fish, wildlife, and plants, and their habitats. Therefore, both law and policy have a general presumption against allowing such uses within the Refuge System.”

To comply with the policy on appropriateness, we are evaluating several non-priority public uses for Massasoit NWR suggested during the public scoping process. Bicycling is not a priority public use of the Refuge System. Bicycling will not be allowed on the 1.1-mile trail or anywhere else on the refuge.

The most critical piece of this analysis was the consideration of the potential impact bicycles would present to turtles moving from Crooked Pond across the trail into the uplands. Refuge staff has observed the impact bicycles have had on reptiles and amphibians at other refuges within the Eastern Massachusetts National Wildlife Refuge Complex on similar types of trails. Each year, staff observation and/or visitor reports have documented that bicycles have run over hatchlings, frogs and/or salamanders. Given that the trail route is in such close proximity to Crooked Pond, and the refuge was established for the protection of the Federally-endangered northern red-bellied cooter, allowing this use would be in direct conflict with the refuge purpose.

Further, bicycling may degrade the trail and cause erosion, and create safety hazards for other visitors. Foot travel will be allowed on established 1.1-mile fireline which will be managed as a nature trail so that visitors may experience five of the priority (wildlife-dependent) public uses, including wildlife observation, photography, interpretation, environmental education, and hunting. Bicycling is not required to experience any of these wildlife-dependent uses. Bicyclists have been demonstrated to ride off-trail in unauthorized areas in other conservation areas, and have trespassed on the Massasoit NWR. The presence of old roads and firebreaks on the Massasoit NWR would provide opportunities for bicyclists that chose to ignore or be ignorant of refuge restrictions to access parts of the refuge that are environmentally sensitive, and where more than the occasional trespass would have serious resource protection ramifications.

Given Service policies, current conditions, required maintenance, and demand, we conclude that bicycling is not an appropriate use for Massasoit NWR. Prohibiting bicycling will prevent erosion and soil compaction that might occur on the trail from bicycles and the frequency and extent of wildlife disturbance caused by cyclists. Biking is not a wildlife-dependent public use, nor is it necessary to support any other appropriate priority public use, and it may decrease the enjoyment of the refuge by other visitors. There are also many other sites throughout the surrounding area that provide bicycling opportunities.

FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Massasoit National Wildlife Refuge

Use: Horseback Riding

This form is not required for wildlife-dependent recreational uses, take regulated by the State, or uses already described in a refuge CCP or stepdown management plan approved after October 9, 1997.

Decision criteria:	YES	NO
(a) Do we have jurisdiction over the use?	✓	
(b) Does the use comply with applicable laws and regulations (Federal, State, Tribal, and local)?	✓	
(c) Is the use consistent with applicable Executive orders and Department and Service policies?	✓	
(d) Is the use consistent with public safety?	✓	
(e) Is the use consistent with goals and objectives in an approved management plan or other document?		✓
(f) Has an earlier documented analysis not denied the use or is this the first time the use has been proposed?	✓	
(g) Is the use manageable within available budget and staff?		✓
(h) Will this be manageable in the future within existing resources?		✓
(i) Does the use contribute to the public’s understanding and appreciation of the refuge’s natural or cultural resources, or is the use beneficial to the refuge’s natural or cultural resources?		✓
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see section 1.6D, 603 FW 1, for description), compatible, wildlife-dependent recreation into the future?		✓

Where we do not have jurisdiction over the use (“no” to (a)), there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe (“no” to (b), (c), or (d)) may not be found appropriate. If the answer is “no” to any of the other questions above, we will **generally** not allow the use.

If indicated, the refuge manager has consulted with State fish and wildlife agencies. Yes No

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor’s concurrence.

Based on an overall assessment of these factors, my summary conclusion is that the proposed use is:

Not Appropriate **Appropriate**

Refuge Manager: _____ Date: _____

If found to be **Not Appropriate**, the refuge supervisor does not need to sign concurrence if the use is a new use.

If an existing use is found **Not Appropriate** outside the CCP process, the refuge supervisor must sign concurrence.

If found to be **Appropriate**, the refuge supervisor must sign concurrence:

Refuge Supervisor: _____ Date: _____

A compatibility determination is required before the use may be allowed.

JUSTIFICATION FOR A FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Massasoit National Wildlife Refuge

Use: Horseback Riding

NARRATIVE:

The Service policy on Appropriate Refuge Uses (603 FW 1) states that: “General public uses that are not wildlife-dependent recreational uses (as defined by the Improvement Act) and do not contribute to the fulfillment of refuge purposes or goals or objectives as described in current refuge management plans are the lowest priorities for refuge managers to consider. These uses are likely to divert refuge management resources from priority general public uses or away from our responsibilities to protect and manage fish, wildlife, and plants, and their habitats. Therefore, both law and policy have a general presumption against allowing such uses within the Refuge System.”

To comply with the 2006 U.S. Fish and Wildlife Service policy on appropriateness, we are evaluating several non-priority public uses for Massasoit National Wildlife Refuge (NWR) suggested during the public scoping process. Horseback riding is not identified as a priority public use of the National Wildlife Refuge System under the National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd-668ee), as amended by the National Wildlife Refuge System Improvement Act of 1997 (NWRISA).

Horseback riding may degrade the trails and cause further erosion. Foot travel will be allowed on a 1.1-mile nature trail so that visitors may experience five of the priority (wildlife-dependent) public uses, including wildlife observation, photography, interpretation and environmental education, and hunting. Horseback riding is not required to experience any of these wildlife-dependent uses. Furthermore, portions of the trails are sloped and rocky. Horseback riding may degrade the trail, causing further erosion on areas of the trail, or create safety hazards for other visitors. Horses may also leave manure along the trail, degrading the enjoyment of the refuge by other visitors.

Additionally, horse manure may contain viable seeds from invasive plants (Wells and Lauenroth 2007), which may be a management problem for the refuge. Trail maintenance is another issue. Massasoit NWR is an unstaffed refuge and will likely remain unstaffed for the near future. The trail will be monitored and maintained occasionally when refuge staff are available and at the refuge for other assignments. Any additional damage to trails would potentially divert limited refuge staff resources to address a non-priority public use.

Given the refuge purpose, Service policies, current conditions, aesthetic and ecological implications, required maintenance, and demand, we conclude that horseback riding is not an appropriate activity for Massasoit NWR. While we have observed illegal use of the refuge by horseback riders, and it was brought up at the public scoping meeting, allowing this activity could impact the trail conditions, introduce non-native species, and pose a threat to trampling of wildlife and native vegetation. Prohibiting horseback riding may positively impact soils and wildlife; if only by reducing the amount of erosion and soil compaction that might occur on the trail, the frequency and extent of wildlife disturbance, and disallowing a potential vector of invasive plants. Horseback riding is not a wildlife dependent public use, nor is it necessary to support any priority, wildlife-dependent public use, and may decrease the enjoyment of the refuge for other visitors.

LITERATURE CITED

Wells F.H., and W. K. Lauenroth. 2007. The Potential for Horses to Disperse Alien Plants Along Recreational Trails. *Rangeland Ecology & Management* 60(6):574–577.

FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Massasoit National Wildlife Refuge

Use: Pets

This form is not required for wildlife-dependent recreational uses, take regulated by the State, or uses already described in a refuge CCP or stepdown management plan approved after October 9, 1997.

Decision criteria:	YES	NO
(a) Do we have jurisdiction over the use?	✓	
(b) Does the use comply with applicable laws and regulations (Federal, State, Tribal, and local)?	✓	
(c) Is the use consistent with applicable Executive orders and Department and Service policies?	✓	
(d) Is the use consistent with public safety?	✓	
(e) Is the use consistent with goals and objectives in an approved management plan or other document?		✓
(f) Has an earlier documented analysis not denied the use or is this the first time the use has been proposed?	✓	
(g) Is the use manageable within available budget and staff?		✓
(h) Will this be manageable in the future within existing resources?		✓
(i) Does the use contribute to the public’s understanding and appreciation of the refuge’s natural or cultural resources, or is the use beneficial to the refuge’s natural or cultural resources?		✓
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see section 1.6D, 603 FW 1, for description), compatible, wildlife-dependent recreation into the future?		✓

Where we do not have jurisdiction over the use (“no” to (a)), there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe (“no” to (b), (c), or (d)) may not be found appropriate. If the answer is “no” to any of the other questions above, we will **generally** not allow the use.

If indicated, the refuge manager has consulted with State fish and wildlife agencies. Yes No

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor’s concurrence.

Based on an overall assessment of these factors, my summary conclusion is that the proposed use is:

Not Appropriate **Appropriate**

Refuge Manager: _____ Date: _____

If found to be **Not Appropriate**, the refuge supervisor does not need to sign concurrence if the use is a new use.

If an existing use is found **Not Appropriate** outside the CCP process, the refuge supervisor must sign concurrence.

If found to be **Appropriate**, the refuge supervisor must sign concurrence:

Refuge Supervisor: _____ Date: _____

A compatibility determination is required before the use may be allowed.

JUSTIFICATION FOR A FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Massasoit National Wildlife Refuge

Use: Pets

NARRATIVE:

The U.S. Fish and Wildlife Service (Service) policy on Appropriate Refuge Uses (603 FW 1) states that: “General public uses that are not wildlife-dependent recreational uses (as defined by the National Wildlife Refuge System (Refuge System) Improvement Act (Improvement Act) of 1997) and do not contribute to the fulfillment of refuge purposes or goals or objectives as described in current refuge management plans are the lowest priorities for refuge managers to consider. These uses are likely to divert refuge management resources from priority general public uses or away from our responsibilities to protect and manage fish, wildlife, and plants, and their habitats. Therefore, both law and policy have a general presumption against allowing such uses within the Refuge System.”

Since the refuge has never been open to visitation, this is not considered a pre-existing use. We do, however, recognize that there has been illegal trespass by the public, some of whom had their dogs on- and off-leash. Disturbance to wildlife and habitat in conjunction with the failure by pet owners to comply with refuge regulations is part of the justification for disallowing pet walking on the refuge. Refuge staff have witnessed at other locations where dogs are allowed on-leash, that dog owners repeatedly violate leash requirements and let dogs run off-leash. Dogs and other pets both on and off-leash can have a significant impact on wildlife. Jones and Stokes (1977) demonstrated that domesticated dogs can have serious detrimental impacts on local concentrated nesting bird populations. Studies have demonstrated that dogs can, and do, flush incubating birds from nests with possible serious consequences to declining bird populations (Yalden and Yalden 1990, Soluri 1994, Gill 1994). Further, the presence of domesticated dogs can disrupt breeding displays (Baydack 1986) and disturb roosting activity in ducks (Keller 1991). Other studies have shown that even when dogs are restrained on leash, they can displace native migratory bird species from natural habitats and cause a drop in diversity of local bird fauna (Banks and Bryan 2007). Dog waste is unsightly for refuge visitors, and it can transmit diseases that may threaten the health of some wildlife and other domestic animals. Domestic dogs can introduce various diseases (distemper; parvovirus, and rabies) and transport parasites into wildlife habitats (Sime 1999). Additionally, not all refuge visitors are pet-friendly, and unrestrained dogs can disturb other refuge visitors. Lastly, dogs off-leash in sensitive turtle nesting areas could be detrimental to the productivity of nesting northern red-bellied cooters. Even though these areas are closed to the public, unauthorized trespass by dog owners in the past has occurred at Massasoit NWR, including in sensitive areas, and we anticipate continued unauthorized trespass would not only occur but increase if dogs were allowed on the refuge, as some dog owners would want their dogs to be able to swim in refuge ponds.

The town of Plymouth and MSSF have miles of trails where the public can take their dog to participate in outdoor recreation, allowing pet recreationists to disperse over a greater area. This dispersion decreases the likelihood that an individual pet will disrupt wildlife or have a negative interaction with wildlife-dependent recreationists. Additionally, being an unstaffed refuge, we do not have the resources to monitor this use regularly or to provide receptacles for animal waste, which if left along the refuge’s single small trail, diminishes the quality of other visitor’s wildlife recreational experience. To ensure the protection of wildlife and habitat, to provide quality wildlife-dependent recreation opportunities, and to support the refuge’s establishing purpose in protecting the northern red-bellied cooter, the manager has determined the presence of pets to be not appropriate on Massasoit NWR.

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FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Massasoit National Wildlife Refuge

Use: Sunbathing and Swimming

This form is not required for wildlife-dependent recreational uses, take regulated by the State, or uses already described in a refuge CCP or stepdown management plan approved after October 9, 1997.

Decision criteria:	YES	NO
(a) Do we have jurisdiction over the use?	✓	
(b) Does the use comply with applicable laws and regulations (Federal, State, Tribal, and local)?	✓	
(c) Is the use consistent with applicable Executive orders and Department and Service policies?	✓	
(d) Is the use consistent with public safety?		✓
(e) Is the use consistent with goals and objectives in an approved management plan or other document?		✓
(f) Has an earlier documented analysis not denied the use or is this the first time the use has been proposed?	✓	
(g) Is the use manageable within available budget and staff?		✓
(h) Will this be manageable in the future within existing resources?		✓
(i) Does the use contribute to the public’s understanding and appreciation of the refuge’s natural or cultural resources, or is the use beneficial to the refuge’s natural or cultural resources?		✓
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see section 1.6D, 603 FW 1, for description), compatible, wildlife-dependent recreation into the future?		✓

Where we do not have jurisdiction over the use (“no” to (a)), there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe (“no” to (b), (c), or (d)) may not be found appropriate. If the answer is “no” to any of the other questions above, we will **generally** not allow the use.

If indicated, the refuge manager has consulted with State fish and wildlife agencies. Yes No

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor’s concurrence.

Based on an overall assessment of these factors, my summary conclusion is that the proposed use is:

Not Appropriate **Appropriate**

Refuge Manager: _____ Date: _____

If found to be **Not Appropriate**, the refuge supervisor does not need to sign concurrence if the use is a new use.

If an existing use is found **Not Appropriate** outside the CCP process, the refuge supervisor must sign concurrence.

If found to be **Appropriate**, the refuge supervisor must sign concurrence:

Refuge Supervisor: _____ Date: _____

A compatibility determination is required before the use may be allowed.

JUSTIFICATION FOR A FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Massasoit National Wildlife Refuge

Use: Sunbathing and Swimming

NARRATIVE:

U.S. Fish and Wildlife Service policy does not specifically encourage sunbathing and swimming. Massasoit NWR has never been open for this use and it is not considered to be a secondary use that would support priority wildlife-dependent uses at the refuge. The only areas where swimming and sunbathing could take place on the refuge are at the coastal ponds which are closed to all public access in order to protect the northern red-bellied cooter. These uses would have adverse impacts on refuge wildlife and habitat and encourage visitation to areas that were established specifically for species protection. Crooked Pond and the refuge-owned shoreline sections of Hoyt, Gunners Exchange and Island Ponds will remain closed to all public recreational use including sunbathing and swimming. In the Plymouth area, there are multiple places the public can visit that allow for these uses in a more appropriate, already established location.